New independent claim 84 discloses a fast axis collimator with a plurality of lens elements adjoining one another in the direction of the slow axis and forming the slow axis collimator. Ullmann discloses a slow axis collimator formed by only one lens element for all emitters of the laser diode arrangement.

Claim 85 recites a plurality of lens elements, each forming a fast axis collimator and a slow axis collimator, the element joined to one another in the slow axis. This arrangement is neither shown nor described by Ullmann.

Claim 86 recites a row of emitter elements segmented such that a plurality of emitter rows or emitter bars are used are used, each row having its own optics for fast and slow axis collimating, the rows being offset by 90 degrees on an optical coupling element.

The invention described by the claims has the advantage of a high power laser beam created by a laser diode arrangement with a large number of laser diodes, the laser diode arrangement still having a small size.

The claims are allowable over the prior art and favorable action is eagerly and earnestly solicited. If any issues remain, and the Examiner believes a telephone conversation would resolve such issues, the Examiner is urged to contact the undersigned attorney.

Fees for a two month extension of time and an additional independent claim accompanies this Amendment. If any additional fees are due and owing, the Commissioner is authorized to charges Deposit Account 08-2455.

Respectfully submitted,

by _____
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43. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics are formed by at least one lens element which is made as the fast axis collimator and the slow axis collimator.

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44. The laser diode arrangement as claimed in claim 43, wherein the at least one lens element comprises an entry side with a lens surface which acts as the fast axis collimator, with a cylinder lens surface with the axis lying in a direction of the slow axis (X axis) and an exit side with at least one lens surface which acts as the slow axis collimator, with at least one cylinder lens surface with an axis lying in the fast axis (Y axis).

45. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics has a plurality of lens elements which adjoin one another in the direction of the slow axis (X axis).

46. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics is produced in one piece or monolithically with a plurality of lens elements.

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47. (Amended) The laser diode arrangement as claimed in claim 83, wherein each lens element of the correction optics is assigned to an emitter element.

48. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics is segmented and comprises at least two correction optics segments which follow one another in a direction of the slow axis (X axis).

49. The laser diode arrangement as claimed in claim 48, wherein the at least one correction optics segment has at least two lens element.

50. (Amended) The laser diode arrangement as claimed in claim 84, wherein the at least one correction optics have segments that are adjusted and fixed independently of one another.

51. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics collimates or shapes beams of the at least one row of emitter elements into beams which are parallel or roughly parallel to one another in the plane of the slow axis (X axis).

52. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics collimates or shapes the beams of the at least one row of emitter elements into beams which are parallel or roughly parallel to one another in the plane of the slow axis (X axis) and adjoin one another in the direction of the slow axis (X axis) without overlapping one another.

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53. (Amended) The laser diode arrangement as claimed in claim 83, wherein a part of the at least one correction optics which acts as the slow axis collimator has a plurality of lens elements which in their optical action correspond to cylinder lenses which are oriented with their axis in the fast axis (Y axis), and which adjoin one another in the direction of the slow axis and of which one is assigned to one emitter element at a time.

54. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics has at least one fast axis collimator for at least one row of emitter elements which forms a segmented part of the at least one correction optics and which comprises a plurality of collimator segments which follow one another in the slow axis (X axis).

55. The laser diode arrangement as claimed in claim 54, wherein the plurality of collimator segments of the fast axis collimator of the at least one row of emitter elements are adjusted and fixed independently of one another.

56. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one correction optics has at least one slow axis collimator located in a beam path (Z axis) following the fast axis collimator.

57. The laser diode arrangement as claimed in claim 56, wherein the slow axis collimator is formed by a host of cylinder lens elements which in their optical action correspond to cylinder lenses and which are oriented with their axis in the fast axis (Y axis), which adjoin one another in a direction of the slow axis and of which one is assigned to one emitter element at a time.

58. The laser diode arrangement as claimed in claim 56, wherein in the beam path following the at least one correction optics there is focusing optics for focusing beams of the emitter elements at a common focus.

59. (Amended) The laser diode arrangement as claimed in claim 83, wherein the segmented part of the at least one correction optics has from two to five segments.

60. (Amended) The laser diode arrangement as claimed in claim 83, wherein there is a connection area or gap between two segments which follow one another between two emitter elements, the connection area being in a middle between the two emitter elements.

61. (Amended) The laser diode arrangement as claimed in claim 83, wherein a part of the at least one correction optics which acts as the slow axis collimator is located in a plane (E) which is defined by the fast axis (Y axis) and the slow axis (X axis) and is located in a beam path where edge beams of the beams diverging in the slow axis (X axis) intersect with their edge beams.

62. The laser diode arrangement as claimed in claim 61, wherein the part of the at least one correction optics acting as the slow axis collimator is formed by several cylinder lenses combined into a monolithic slow axis collimator.

63. The laser diode arrangement as claimed in claim 54, wherein the plurality of collimator segments of the fast axis collimator are cylinder lenses or act as cylinder lenses.

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64. (Amended) The laser diode arrangement as claimed in claim 83, wherein there are at least two rows of emitter elements and wherein the rows with the slow axis (X axis) of the emitter elements are parallel to one another.

65. (Amended) The laser diode arrangement as claimed in claim 83, wherein there are at least two rows of emitter elements and wherein the emitter elements of the rows have active layers located in parallel planes.

66. (Amended) The laser diode arrangement as claimed in claim 83, wherein there are at least two rows of emitter elements and wherein the at least two rows are offset against one another at least in the slow axis (X axis).

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67. (Amended) The laser diode arrangement as claimed in claim 83, wherein there are at least two rows of emitter elements and wherein in a beam path following the fast axis collimator there is at least one optical coupling element or deflection element to combine beams of the at least two rows into a common beam cluster.

68. (Amended) The laser diode arrangement as claimed in claim 83, wherein there are at least two rows of emitter elements in at least one stack, wherein the at least two rows of emitter elements in the stack are offset against one another in a direction of the fast axis (Y axis) and wherein for each row of emitter elements there is one separate, segmented part of the correction optics or segmented fast axis collimator with at least two segments.

69. (Amended) The laser diode arrangement as claimed in claim 83, wherein the at least one row of emitter elements, has at least one row of emitter elements with a segmented part of the at least one correction optics or a segmented fast axis collimator.

70. (Amended) The laser diode arrangement as claimed in claim 83, wherein for each row of emitter elements there are separate correction optics.

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71. (Amended) The laser diode arrangement as claimed in claim 83, wherein for each row of emitter elements (4) there is a separate slow axis collimator (6).

72. (Amended) The laser diode arrangement as claimed in claim 83, wherein there are rows of emitter elements in at least two stacks, the rows in each stack being offset against one another in a direction of the fast axis (Y axis).

73. The laser diode arrangement as claimed in claim 72, wherein the at least two stacks are offset against one another in a direction of the slow axis (X axis).

74. The laser diode arrangement as claimed in claim 43, wherein planes of the rows of emitter elements of at least two stacks are offset in a direction of the fast axis (Y axis) such that the planes of the rows of one stack lie between the planes of the rows of another stack.

75. The laser diode arrangement as claimed in claim 74, wherein an optical means with which the beams of the emitter elements in the slow axis (X axis) are shifted such that the beams of the emitter elements of all stacks form a common beam cluster.

76. (Amended) The laser diode arrangement as claimed in claim 83, further comprising focusing optics which are common to the beams of all emitter elements.

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77. (Amended) The laser diode arrangement as claimed in claim 83, wherein at least one row of emitter elements is formed by a diode laser bar.

78. The laser diode arrangement as claimed in claim 77, wherein the diode laser bar is a semiconductor laser chip with several emitters.

79. (Amended) The laser diode arrangement as claimed in claim 83, wherein the emitter elements each comprise at least one emitter which radiates laser light.

80. (Amended) The laser diode arrangement as claimed in claim 83, wherein the emitter elements each comprise at least two emitters which are located at a distance from one another which is smaller than the mutual distance of the emitter elements in each row.

81. (Amended) The laser diode arrangement as claimed in claim 83, wherein a distance between the emitter elements and a width of the emitter elements in the direction of the slow axis (X axis) is chosen such that an occupation density or a quotient of a total length of radiating areas of one row of emitter elements and the total length is less than 10%.

82. (Amended) The laser diode arrangement as claimed in claim 83, with at least one row of emitter elements which radiate laser light and which are located in a row with the active layer in a common plane (X-Z plane) perpendicular to the fast axis (Y axis).

77. (Amended) The laser diode arrangement as claimed in claim [42] 83, wherein at least one row of emitter elements is formed by a diode laser bar.

78. The laser diode arrangement as claimed in claim 77, wherein the diode laser bar is a semiconductor laser chip with several emitters.

79. (Amended) The laser diode arrangement as claimed in claim [42] 83, wherein the emitter elements each comprise at least one emitter which radiates laser light.

80. (Amended) The laser diode arrangement as claimed in claim [42] 83, wherein the emitter elements each comprise at least two emitters [(4)] which are located at a distance from one another which is smaller than the mutual distance of the emitter elements in each row.

81. (Amended) The laser diode arrangement as claimed in claim [42] 83, wherein a distance between the emitter elements and a width of the emitter elements in the direction of the slow axis (X axis) is chosen such that an occupation density or a quotient of a total length of radiating areas of one row of emitter elements and the total length is less than 10%.

82. (Amended) The laser diode arrangement as claimed in claim [42] 83, with at least one row of emitter elements which radiate laser light and which are located in a row with the active layer in a common plane (X-Z plane) perpendicular to the fast axis (Y axis).

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83. (New) A laser diode arrangement, comprising:

at least one row of emitter elements which emit laser light and which are arranged in the at least one row with an active layer in a common plane (X-Z plane) perpendicular to a fast axis (X-axis), and in a direction of a slow axis (X-axis) following one another and spaced apart from another,

with at least one correction optics which extends in the slow axis (X-axis) which follows the at least one row of emitter elements in a beam direction and which acts as a fast axis collimator and a slow axis collimator,

wherein the at least one correction optics are segmented at least in apart which acts as the fast axis collimator such that its comprises a plurality of correction optic segments which follow one another in the slow axis (X-axis),

said correction optic segments of the fast axis being individual adjusted and fixed independently of one another in relation to the at least one row of emitter elements.

84. (New) A laser diode arrangement, comprising:

at least one row of emitter elements which emit laser light and which are arranged in the at least one row with an active layer in a common plane (X-Z plane) perpendicular to a fast axis (X-axis), and in a direction of a slow axis (X-axis) following one another and spaced apart from another,

with at least one correction optics which extends in the slow axis (X-axis) which follows the at least one row of emitter elements in a beam direction and which acts as a fast axis collimator and a slow axis collimator,

wherein the at least one correction optics are segmented at least in apart which acts as the fast axis collimator such that its comprises a plurality of correction optic segments which follow one another in the slow axis (X-axis),

wherein a part of the at least correction optics which act as a slow axis collimator comprises a plurality of lens elements which in their optical action correspond to cylinder lenses which are orientated with their axis in the fast axis (Y-axis) and which adjoin one another in the direction of the slow axis and of which each one is assigned to one emitter element.

85. (New) A laser diode arrangement, comprising:

at least one row of emitter elements which emit laser light and which are arranged in the at least one row with an active layer in an common plane (X-Z plane) perpendicular to a fast axis (Y-axis) and in a direction of the slow axis (X-axis) following one another and spaced apart form another,

with at least one correction optics which extends in the slow axis (X-axis), which follows the at least one row of emitter elements in a beam direction and which acts as a fast axis collimator as well as a slow axis collimator, wherein the at least one correction optics are formed by a plurality of lens element which adjoin one another in the direction of the slow axis (X-axis),

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each lens element being made as the fast axis collimator and the slow axis collimator and comprises an entry side with a lens surface which acts as a fast axis collimator with a cylinder lens surface with the axis laying in a direction of the slow axis (X-axis) and an axis side with at least one lens surface which acts as the slow axis collimator with at least one cylinder lens surface with an axis laying in the fast axis (Y-axis).

86. (New) A laser diode arrangement, comprising:

at least two rows of emitter elements which emit laser light and which are arranged in each row with an active layer in a common plane (X-Z-plane) perpendicular to a fast axis and in a direction of the slow axis (X-axis) following one another in each row and spaced apart from another,

with at least one correction optics for each row of emitter elements, which extends in the slow axis (X-axis) which correction optics follow the respective row of emitter elements in a beam direction and which acts as a fast axis collimator as well as a slow axis collimator,

the at least two rows of emitters being offset by 90° on a coupling element to combine beams of the at least two rows in a common beam plaster.